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LAND USE OF NORTHERN MEGALOPOLIS FROM ERTS-1 IMAGERY

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| 16. Abstract<br><br>During the second six months of this investigation a color-coded urban-type land use map of the three northern megalopolitan states Massachusetts, Connecticut and Rhode Island has been completed from ERTS-1 images. A computer data bank containing 11 categories of land use for the entire area by 1/4-square-kilometer cells is 80% completed. When completed, the data bank will permit the investigation to proceed to brief analytical studies for completion of the contract. |                                      |  |           |
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## Preface

The objective of the investigation reported herein is to determine the utility of ERTS-1 for compiling land use maps and computer data banks suitable for use in large-area regional planning studies. The test area includes all of New England except northern Maine, but priority is given to the densely populated southern states Massachusetts, Connecticut and Rhode Island.

The report concludes that the urban-type land use map of this three-state area, in both manually color-coded and b/w computer-printed versions, will facilitate the work of state and regional planners. The obvious cost-effectiveness of the ERTS-derived products, measured either in dollars or time, will permit maps and analyses previously considered impractical or impossible to be efficiently completed.

## LAND USE MAP OF NORTHERN MEGALOPOLIS FROM ERTS-1 IMAGERY

### 1. Introduction

This interim report is submitted to inform GSFC authorities of the scientific and technological status of the subject investigation at the end of the second six months. A color-coded land use map of the three southern states of New England has been completed, and the manual transfer of its land use information to a computer data bank is 80% complete.

### 2. Work Done during the Six-Month Reporting Period

Since the previous six-month reporting period, which ended on 30 November 1972, the following accomplishments have transpired:

- (a) receipt of the imagery necessary to carry out the project
- (b) appearance before the U.S. Senate Committee on Aeronautical and Space Science on 14 March, and heavy participation in the GSFC Significant Events Symposium at New Carrollton, Maryland, on 5-9 March 1973.
- (c) 100% completion of the color-coded version of the urban-type land use map of northern megalopolis, in the form of a map of the three states Massachusetts, Connecticut and Rhode Island. Scale of the map is 1:250,000 and the number of categories of land use is eleven.
- (d) completion of 80% of the task of inputting the land use shown on the color-coded map into the computer data bank, by typing in the predominant land use of each of the approximately 325,000 1/4-square-kilometer rectangular grid cells of the color-coded map.
- (e) exploration with Dr. Robert Jastrow, Director of the Goddard Space Center in New York City, of the possibility of a summer collaboration at Hanover, in which Dr. Jastrow could contribute his skills, and his New York facilities, towards making ERTS digital tape products available in optimum form for the Dartmouth College Project in Remote Sensing, and would receive in return assistance from the locationally-oriented Geography Department and the geochemically-oriented Geology Department here at Dartmouth.

3. Program for the Next Six Months

As soon as the data bank is completely loaded it will be used for special studies as follows:

- (a) evaluation of ERTS-1 as a planning tool
- (b) determination of the urban-rural interface as related to that defined by the 1970 Census, and by previous DCPRS studies based on high altitude aerial photography.
- (c) identification of some sinks and sources of population energy, in terms of positive and negative departures from average.
- (d) brief exploration of the possibilities of prediction of areas of future population growth, and possibly of recommendations for improvements in land use planning, from ERTS imagery.

At the end of June, attention will be shifted to preparation of a final report.

4. Conclusions

- (a) The color-coded land use map represents a highly useful contribution to regional planning since it is the first example of a detailed, urban-oriented interstate planning map. In fact, the heavily researched state of Massachusetts never has had a true land use map until this one was completed two weeks ago.
- (b) The computer data bank will greatly increase the analytical potential of the color-coded map, as well as provide for inexpensive reproducibility.

5. Recommendation

That the mapping done for these three states be followed by an investigation with state planning authorities, so that the states themselves can carry on the work, operationally after NASA's research phase has been completed.